Revised

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

TENTATIVE ADDENDUM NO. 2
TO
ORDER NO. R9-2003-0007

MASTER RECLAMATION PERMIT
WITH WASTE DISCHARGE REQUIREMENTS
FOR THE PRODUCTION AND PURVEYANCE OF RECYCLED WATER

FOR

OLIVENHAIN MUNICIPAL WATER DISTRICT
4-S RANCH WASTEWATER TREATMENT PLANT
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Water Board), finds that:

1. On February 5, 2003, this Regional Water Board adopted Order No. R9-2003-0007, *Master Reclamation Permit with Waste Discharge Requirements for the Production and Purveyance Of Recycled Water for the Olivenhain Municipal Water District, 4-S Ranch Wastewater Treatment Plant, San Diego County*. Order No. R9-2003-0007 updated Order No. 85-40 and established requirements for the discharge of up to 2.0 million gallons per day (MGD) and the production, purveyance, and use of 1.0 MGD of tertiary recycled water.

2. Addendum No. 1 to Order No. R9-2003-0007 was adopted on September 8, 2004. Addendum No. 1 updated the total dissolved solids (TDS) discharge specifications prescribed by Order No. R9-2003-0007, which established a daily maximum TDS effluent limitation of 1,200 mg/L and a 12-month average limitation not to exceed the TDS of the potable supply plus an increment of 400 mg/L, up to a maximum value of 1,500 mg/L. The addendum revised the TDS limits by establishing a daily maximum TDS limitation of 1,500 mg/L and a 12-month average limitation of 1,300 mg/L, which are consistent with other Orders prescribed by this Regional Water Board for wastewater treatment plants that discharge recycled water within the Solana Beach Hydrologic Area (905.10). The changes were in full conformance with the Water Quality Control Plan for the San Diego Basin (9), September 8, 1994 as amended.

3. The purpose of this addendum is to reflect upgrades of the 4-S Ranch Wastewater Treatment Plant's tertiary recycled water production system from chlorine disinfection to ultraviolet (UV) disinfection. Order No. R9-2003-0007 prescribed effluent limitations and a monitoring and reporting program for tertiary

recycled water using chlorine disinfection. On May 31, 2005, the State of California Department of Health Services approved the use of UV disinfection at the 4-S Ranch Wastewater Treatment Plant for the production of tertiary recycled water. The 4-S Ranch Wastewater Treatment Plant will utilize UV disinfection in lieu of chlorine disinfection.

4. The Regional Water Board has notified the Olivenhain Municipal Water District and all known interested parties of its intent to amend the waste discharge requirements of Order No. R9-2003-0007.

5. The Regional Water Board in a public meeting has heard and considered all comments pertaining to the terms and conditions of this addendum.

IT IS HEREBY ORDERED, That Order No. R9-2003-0007 is amended as follows:

1. Discharge Specifications B.2 is replaced with the following:

   The average daily flow rate from the UV disinfection system shall not exceed 2.0 million gallons per day (MGD). ~~Six UV disinfection banks are to be operated at all times during the disinfection process.~~

2. The following replaces Facility Design and Operation Specifications Section D.6 *Disinfection Process*:

   Disinfection of recycled water shall comply with all requirements of California Code of Regulations, Title 22, Division 4. The Recycled Water Agency shall comply with the following conditions:

   (1) Filtered effluent shall be disinfected via irradiation with UV light. A low pressure UV disinfection system, approved by the State DHS, shall be installed to meet disinfection requirements.

   (2) Until automatic controls are installed to operate the plant based on the measured UV transmittance (UVT):

   (a) Operate UV system to achieve a minimum delivered UV dose of 100 mJ/cm^2;

   (b) Assume the max flow of 2.0 MGD and 55% transmittance in the water at all times;

   (c) The 4SRWRP plant must be operated with all six UV banks in operation. This must be followed even with an operator on site.

   (3) Once automatic controls are installed to operate the plant based on the measured UV transmittance (UVT):

(a) The Recycled Water Agency shall provide continuous, reliable monitoring of the flow rate, UV ~~fluid~~ transmittance, ~~UV intensity,~~ and turbidity.

(b) The filtered effluent UV transmittance (254 nanometers) shall be 55 percent or greater ~~than 254 nanometers~~ at all times.

(c) A minimum UV dose of 100 mJ/cm^2 shall be provided at all times. When the treatment process does not provide the minimum dose, treated wastewater shall be diverted to an alternate disposal facility.

(d) The operation hours of any UV lamp shall not exceed 18,500 hours. The lamp age of a group is determined by the oldest lamp in the group.

(e) The UV lamp quartz sleeves are to be cleaned a minimum of every 2 months (within 4 days).

(f) UV lamp loading shall be in range of 3.75 – 12.5 gallons per minute per lamp.

(g) The UV dose shall be calculated using the following empirically-derived multiple linear equation (to be incorporated into the UV process logic controller):

$$10^{[1.59+(0.42*\log(UVT)-(0.78*\log(flow))]},$$

where UVT is % transmittance, and flow = gpm/lamp, determined by dividing the flow by the number of lamps in operation

UV Dose calculated by the equation above, shall be adjusted with a 0.91 end of lamp life (EOLL) factor and a 0.80 fouling factor to ensure an adequate number of banks are in operation.

(h) The above equation only applies for the Phillips lamps model number G64T5L (Trojan part number 302511).

(i) The dose delivered per bank shall be multiplied by the number of banks in operation to determine the delivered dose.

(j) Adequate stock of essential replacement parts must be maintained, especially Phillips lamp model number G64T5L (Trojan part number 302511).

3. The following replaces Facility Design and Operation Specifications Section D.7 *Operation Manual*:

A copy of the facility operations manual shall be maintained at the Recycled Water Agency's facility and shall be available to operation personnel and Regional Water Board staff at all times. The following portions of the operations

manual shall be posted at the treatment plant as a quick reference for treatment plant operators:

a. Alarm set points for secondary turbidity, tertiary turbidity, ~~chlorine residual,~~ UV dose, high flow, UV transmittance, and UV lamp operation hours.

b. Levels at which flow will be diverted for secondary turbidity, tertiary turbidity, ~~chlorine residual~~, UV dose, high flow, UV lamp operation hours, and UV transmittance.

c. When to divert flow for high daily and weekly median total coliform.

d. When the authorities (State DHS, County DEH, Regional Water Board) will be notified of a diversion.

e. Names and numbers of those authorities to be notified in case of a diversion.

f. Frequency of calibration for ~~turbidimeters~~ meters measuring turbidity, flow, and UV transmittance.

g. UV lamp tracking procedures and replacement interval.

h. Frequency of cleaning and inspection of the quartz sleeves.

4. The following replaces Standard Provisions Section F.6.c *Endangerment of Health and Environment*:

c. Any treatment plant upset which causes the effluent limitations of this Order to be exceeded including, but not limited to, the following:

(1) Failure of UV equipment

(2) Effluent total coliform bacteria greater than 240 MPN/100 ml

(3) Turbidity greater than 10 NTU

(4) UV dose less than 100 mJ/cm^2

5. Monitoring and Reporting Program, Section A.7 shall be replaced with the following:

The discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, UV lamp age, UV lamp replacement, UV lamp quartz sleeve cleaning, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report or application. This period may be extended during the course of any

unresolved litigation regarding this discharge or when requested by the Regional Water Board Executive Officer.

6. Monitoring and Reporting Program, Section B shall be replaced with the following:

B. EFFLUENT MONITORING

1. Samples of the effluent discharged from the 4-S Ranch Wastewater Treatment Plant (4SRWWTP) shall be collected at a point at or nearest to the effluent pump station, downstream of the disinfection process and prior to any dilution. Upon initiation of the UV disinfection system, coliform analysis shall be conducted at the point where disinfected effluent leaves the UV disinfection channel prior to the injection of sodium hypochlorite to the flow stream at the downstream end of the UV disinfection channel.

2. The discharger is responsible for monitoring and reporting in accordance with the following criteria:

CONSTITUENT	UNIT	TYPE OF SAMPLE	SAMPLING FREQUENCY[1,2]	REPORTING FREQUENCY
Flowrate*	MGD	Continuous	Continuous	Monthly
Turbidity	NTU	Continuous	**	Monthly
Total Coliform	MPN/100ml	Grab	***	Monthly
Biochemical Oxygen Demand (BOD_5 @ 20°C)	mg/L	Composite	Weekly	Monthly
Total Suspended Solids	mg/L	Composite	Weekly	Monthly
Volatile Suspended Solids	mg/L	Composite	Weekly	Monthly
pH	Units	Composite	Weekly	Monthly
Operational UV Dose[3]	mJ/cm^2	Continuous	Continuous	Monthly
Number of Banks in Operation[3]	#	Continuous	Continuous	Monthly
Flow per lamp[3]	Gpm/lamp	Continuous	Continuous	Monthly
~~UV Intensity~~	~~mW/cm^2~~	~~Continuous~~	~~Continuous~~	~~Monthly~~
~~Exposure/Residence Time~~	~~Seconds~~	~~Continuous~~	~~Continuous~~	~~Monthly~~
UV Transmittance[3]	% ~~nm~~	Continuous	Continuous	Monthly
~~Fluid Transmittance~~	~~%~~	~~Continuous~~	~~Continuous~~	~~Monthly~~
Liquid Level in UV Channel	Feet	Continuous	Continuous	Monthly
Lamp Age	Hours	Continuous	Continuous	Monthly
Total Dissolved Solids	mg/L	Composite	Quarterly	Quarterly
Chloride	mg/L	Composite	Quarterly	Quarterly
Sulfate	mg/L	Composite	Quarterly	Quarterly

CONSTITUENT	UNIT	TYPE OF SAMPLE	SAMPLING FREQUENCY[1,2]	REPORTING FREQUENCY
Boron	mg/L	Composite	Quarterly	Quarterly
Percent Sodium	%	Composite	Quarterly	Quarterly
Fluoride	mg/L	Composite	Quarterly	Quarterly
Iron	mg/L	Composite	Quarterly	Quarterly
Manganese	mg/L	Composite	Quarterly	Quarterly
Methylene Blue Active Substances	mg/L	Composite	Quarterly	Quarterly
Color	Units	Composite	Quarterly	Quarterly
Aluminum	mg/L	Composite	Annually	Annually
Arsenic	mg/L	Composite	Annually	Annually
Barium	mg/L	Composite	Annually	Annually
Cadmium	mg/L	Composite	Annually	Annually
Chromium	mg/L	Composite	Annually	Annually
Lead	mg/L	Composite	Annually	Annually
Mercury	mg/L	Composite	Annually	Annually
Selenium	mg/L	Composite	Annually	Annually
Silver	mg/L	Composite	Annually	Annually

Notes: MGD = Million Gallons per Day
MPN/100 ml = Most Probable Number per 100 milliliters
mg/L = milligrams per liter
NTU = Nephelometric Turbidity Units
nm = nanometers
mJ/cm^2 = milliwatt-second per square centimeter

1 The discharger shall increase the sampling frequency from weekly to daily, from quarterly to monthly, and from annually to quarterly for any noted constituent that exceeds the limit specified by Discharge Specifications B.1, B.2, B.3, and B.4 of Order No. R9-2003-0007. The increased frequency of monitoring shall continue until the discharger achieves compliance with the limitations for three consecutive periods. After compliance is achieved, the discharger shall resume sampling at the specified frequency.

2 Weekly is defined as a calendar week (Sunday through Saturday). Monthly is defined as a calendar month. Quarterly is defined as three consecutive calendar months beginning at the first of the year. Annual is defined as a calendar year.

3 Report daily minimum and daily average UV dose. For the daily minimum UV dose, also report the associated # banks, gallons per minute per lamp, and UV transmittance used in the calculation. If the UV dose falls below the minimum requirement multiple times in one day, report the duration and dose calculation variables associated with each incident.

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* Report both the daily average and peak flowrate for both effluent flowrate for the treatment plant and the influent flowrate for the UV disinfection system.

** Effluent turbidity analyses shall be conducted continuously using a continuous monitoring and recording turbidimeter. Compliance with the daily average operating filter effluent turbidity limit of 2 NTU shall be determined by averaging the recorded turbidity levels at a minimum frequency of one sample every 1.2 hours over a 24-hour period. Compliance with the turbidity standard of not exceeding 5 NTU more than 5 percent of the time over a 24-hour period shall be determined using the levels of recorded turbidity taken at a minimum frequency of one sample every 1.2 hours over a 24-hour period. Should the continuous turbidity meter and/or recorder fail, grab sampling at a minimum frequency of one sample every 1.2 hours may be substituted. The discharger shall report monthly the results of the daily average effluent turbidity (daily being defined as the 24-hour period from 12 am to 12 am). If the turbidity exceeds 5 NTU, the discharger shall also report the time, duration, and value of exceedance(s).

*** Samples for total coliform bacteria shall be collected at least daily and at a time when wastewater characteristics are most demanding on the treatment facilities and disinfection procedures. Results of daily total coliform bacteria monitoring and running 7-day median determination shall be reported monthly.

7. The following shall be inserted as Section G:

G. UV DISINFECTION SYSTEM REPORT

Every month, the discharger shall submit a report certifying that the UV disinfection system has been in compliance with all the provisions described in Facility Design and Operation Specifications D.6.a of Order No. R9-2003-0007. If there is any noncompliance during the reporting period, the discharger shall discuss the steps taken to correct the noncompliance.

8. Section G, Report Schedule, in Order No. R9-2003-0007 shall be renumbered to Section H.

9. This Addendum becomes effective on the date of adoption by the Regional Water Board.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Addendum adopted by the California Regional Water Quality Control Board, San Diego Region, on August 10, 2005.

TENTATIVE
JOHN H. ROBERTUS
Executive Officer